DEPARTMENT of ENVIRONMENTAL SERVICES Water Supply & Pollution Control Division - Biology Bureau

LAKE TROPHIC DATA

MORPHOMETRIC:

Lake: PHILLIPS POND		Lake Area (ha):	34.52
Town: SANDOWN		Maximum depth (m):	5.8
County: Rocking	nam	Mean depth (m):	3.1
River Basin: Coastal		Volume (m³):	1058500
Latitude: 42°55'0!	5" N	Relative depth:	0.9
Longitude: 71°11'20	W "C	Shore configuration:	1.25
<pre>Elevation (ft):</pre>	212	Areal water load (m/yr): 11.29
Shore length (m):	2600	Flushing rate (yr ⁻¹):	3.70
Watershed area (ha):	811.8	P retention coeff.:	0.54
% watershed ponded:	1.0	Lake type:	natural

BIOLOGICAL:	13 February 1991	27 June 1990
DOM. PHYTOPLANKTON (% TOTAL) #1	ASTERIONELLA 99%	ASTERIONELLA 80%
#2		DINOBRYON 10%
#3		
PHYTOPLANKTON ABUNDANCE (cells/mL)		580.0
CHLOROPHYLL-A (µg/L)		5.31
DOM. ZOOPLANKTON (% TOTAL) #1	CILIATE SPP. 32%	POLYARTHRA 56%
#2	KELLICOTTIA 23%	KERATELLA 26%
#3	KERATELLA 17%	
ROTIFERS/LITER	34	207
MICROCRUSTACEA/LITER	18	29
ZOOPLANKTON ABUNDANCE (#/L)	82	236
VASCULAR PLANT ABUNDANCE		Common/Abun
SECCHI DISK TRANSPARENCY (m)		1.7
BOTTOM DISSOLVED OXYGEN (mg/L)	8.0	2.0
BACTERIA (fecal col., #/100 ml) #1		< 10
#2		10
#3		

SUMMER THERMAL STRATIFICATION:

stratified

Depth of thermocline (m): 2.7
Hypolimnion volume (m³): 93000
Anoxic volume (m³): None

CHEMICAL:	Lake: PHILLIPS POND Town: SANDOWN				
	13 February 1991		27 June 1990		
DEPTH (m)	1.5	3.0	1.5		3.0
pH (units)	6.4	6.3	6.8		6.4
A.N.C. (Alkalinity)	5.9	6.2	7.4		7.6
NITRATE NITROGEN	0.13	0.12	< 0.05		< 0.05
TOTAL KJELDAHL NITROGEN	0.45	0.41	0.61		0.39
TOTAL PHOSPHORUS	0.005	0.004	0.027		0.020
CONDUCTIVITY (µmhos/cm)	111.7	115.1	113.5		112.9
APPARENT COLOR (cpu)	110	128	96		98
MAGNESIUM			1.13		
CALCIUM			5.4		
SODIUM			12.5		
POTASSIUM			1.50		
CHLORIDE	21	22	24		23
SULFATE	7	7	4		4
TN : TP	116	133	23	****	20
CALCITE SATURATION INDEX			2.9		

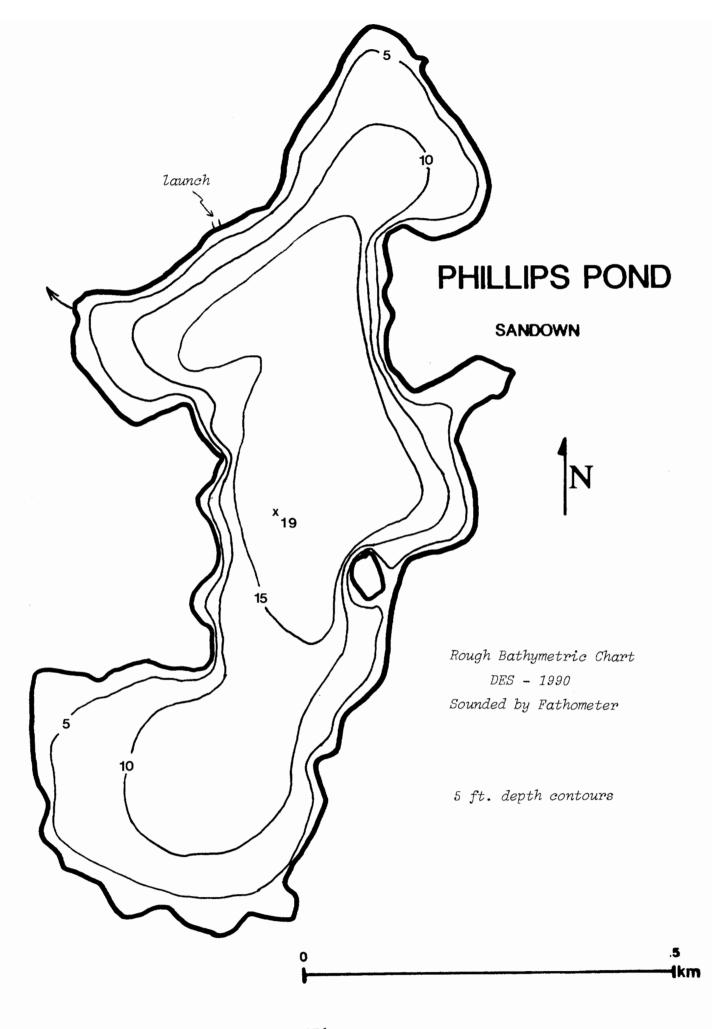
All results in mg/L unless indicated otherwise

TROPHIC CLASSIFICATION: 1990

D.O.	S.D.	PLANT	CHL	TOTAL	CLASS
1	4	4	1	10	Meso.

COMMENTS:

- A good town boat launch site was located on North Shore Road; parking was available at the library. A town beach was located at the northern end of the pond.
- 2. The pond had very dark tea-colored water.
- 3. Chroomonas (60%) was the dominant genus of wholewater phytoplankton.
- 4. Phillips Pond was previously surveyed and classified in 1977. There was no change in the trophic status but the plant growth was somewhat more abundant in 1990, primarily because of the presence of the exotic plant Cabomba.



FIELD DATA SHEET

LAKE: PHILLIPS POND

DATE: 06/27/90

TOWN: SANDOWN

WEATHER: OVERCAST & BREEZY

	DEPTH (M)	TEMP (°C)	*DISSOLVED OXYGEN	OXYGEN SATURATION
	0.1	24.9	7.1	84 %
	1.0	24.5	6.7	79 %
	2.0	22.3	5.2	59 %
	3.0	16.0	3.9	39 %
	4.0	13.0	3.0	28 %
	5.0	11.9	2.0	18 %
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SECCHI DISK (m): 1.7

COMMENTS:

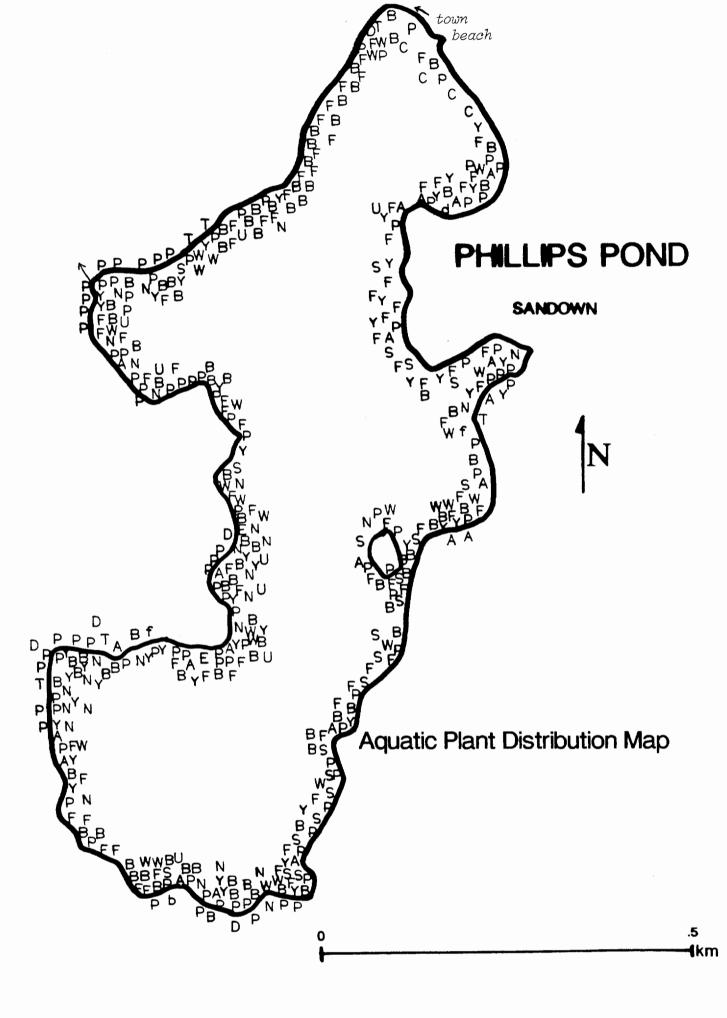
BOTTOM DEPTH (m): 5.5

This survey was conducted in June. The depletion of dissolved oxygen in the bottom

TIME: 1200

waters would probably be greater later in the summer.

*Dissolved oxygen values are in mg/L



AQUATIC PLANT SURVEY

LAKE: PHILLIPS POND		TOWN: SANDOWN	DATE: 06/27/90	
Vor	PLANT NAME		ADUNDANCE	
Key	GENERIC	COMMON	ABUNDANCE	
P	Pontederia cordata	Pickerelweed	Common/Abun	
F	Nymphoides cordatum	Floating heart	Common/Abun	
S	Sparganium	Bur reed	Scattered	
В	Brasenia schreberi	Water shield	Common/Abun	
С	Cabomba caroliniana	Fanwort	Common/Abun	
Y	Nuphar	Yellow water lily	Common	
W	Potamogeton	Pondweed	Common	
A	Sagittaria	Arrowhead	Scattered	
d	Dulichium arundinaceum	Three-way sedge	Sparse	
U	Utricularia	Bladderwort	Sparse	
N	Nymphaea	White water lily	Common	
f	Chlorophyceae	Filamentous green algae	Sparse	
Т	Typha	Cattail	Scattered	
D	Decodon verticillatus	Swamp loosestrife	Sparse	
b	Scirpus	Bulrush	Sparse	
E	Eriocaulon septangulare	Pipewort	Sparse	
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OVERALL ABUNDANCE: Common/Abun

GENERAL OBSERVATIONS:

- Cabomba (a non-native N.H. plant) ringed the entire shoreline of the pond out to a water depth of 10 to 15 feet. Because of its abundance it is not depicted on the map, except along the town beach (northern end) where it was the only plant.
- 2. Cabomba was not present during the 1977 survey. It first appeared in about 1983, and by 1985 had completely encircled the entire shoreline.